

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
16 August 2007 (16.08.2007)

PCT

(10) International Publication Number
WO 2007/090415 A1

(51) International Patent Classification:
B65D 33/02 (2006.01) **B65D 75/52** (2006.01)
B65D 5/60 (2006.01)

(21) International Application Number:
PCT/EP2006/001047

(22) International Filing Date: 7 February 2006 (07.02.2006)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **NESTEC S.A.** [CH/CH]; Swiss Body Corporate, Avenue Nestlé 55, CH-1800 Vevey (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ELLENRIEDER, Michael** [DE/DE]; Erlenring 35, 78239 Rielasingen-Worblingen (DE). **MOROZOV, Serguei** [RU/DE]; Neuer Wall 8, 78315 Radolfzell am Bodensee (DE).

(74) Agent: **THOMAS, Alain**; Av. Nestlé 55, CH-1800 Vevey (CH).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

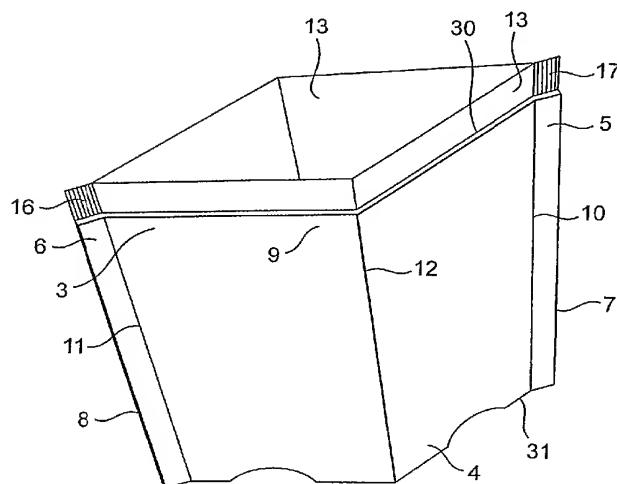
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SELF-STANDING INSULATING SPACE-EFFICIENT PACKAGING ASSEMBLY FOR FOOD AND BEVERAGES



(57) Abstract: The packaging assembly comprises: - two separate or joint outer panels (1,2) composed of rigid material, each of said outer panels comprising an upper part (3), a lower part (4), two side parts (5,6), two side edges (7,8), an upper edge (30), a lower edge (31) and a middle part (9), the side parts (5,6) of each said outer panel comprising bending lines (10,11) and the middle part (9) of each said outer panel comprising a bending line (12). - an inner pouch (13) comprising two opposite walls (14,15), a lower part (18) and an upper part (19), said walls being bonded together by two side seals (16, 17) and said inner pouch being disposed inside said two outer panels wherein the walls (14, 15) of said inner pouch (13) are bonded with corresponding opposite outer panels (1,2), wherein the upper part (19) of said inner pouch is placed higher than the upper edge (30) of said outer panels and the lower edge (31) of said outer panels is placed lower than the lower part (18) of said inner pouch.

WO 2007/090415 A1

SELF-STANDING INSULATING SPACE-EFFICIENT PACKAGING ASSEMBLY FOR FOOD AND BEVERAGES

5 The present invention concerns a self-standing, insulating space-efficient packaging assembly containing a product, which can be reconstituted with water and / or heated in a microwave oven.

10 It is known according to US Patent No. 3'542'566 to have a collapsible container package for concentrate. With this solution, the user has to tear the upper part of the package to open it and also the lower part of the package to allow the inner pouch to expand its volume. This gives a package with restricted initial volume and heat insulation, 15 which is not self-standing and not easy to open.

The GB patent No. 1'536'110 concerns a rigid pouch usable as a cup and a method of producing the same, wherein outer rigid material is lined with inner flexible material, the sheet obtained thereof is center-folded and its opposed 20 parts joined together to form a rigid pouch which, when unfolded, is claimed to turn into a package that can be used as a cup. This gives a package without bending lines on the rigid part, which is difficult to manufacture, fill, open, fold, unfold and seal and which is not locked in 25 unfolded position.

The present invention concerns a packaging assembly, whose advantages for the user compared to prior art are easier opening, better self-standing when unfolded, easier handling and less space utilisation in carrying, storage 30 and disposal. The advantage of the present invention for the food manufacturer compared to prior art is less space utilisation in transport of packaging materials or pre-formed packaging assembly from the supplier to the filling location

35

The present invention concerns a packaging assembly comprising

- 2 -

- 5 - two separate opposite outer panels composed of rigid material, each said outer panel comprising two side parts with their respective side edges, a middle part, an upper part with its respective upper edge and a lower part with its respective lower edge, wherein each said side part comprises a least one bending line and each middle part comprises at least one bending line and
- 10 - - an inner pouch disposed inside said two outer panels, said inner pouch comprising two opposite walls, each said wall comprising a lower, an upper and two side parts, wherein said two walls are bonded together and also with said two outer panels in a way that the packaging assembly can be unfolded and/or
- 15 erected by pressing said outer panels together on their side edges and wherein the upper parts of the walls of said inner pouch are placed higher than the opposite upper edge of said outer panels and the lower parts of the walls of said inner pouch are placed
- 20 higher than the opposite lower edge of said outer panels.

It is preferable according to the invention to have one bending line in each side part and one bending line in each middle part.

The packaging assembly under the present invention provides easy opening, folding, unfolding, locking in unfolded position, self-standing and heat insulation.

30 According to the invention, easy opening of said packaging assembly is provided by the material of the inner pouch and/or by additional means on the material or/and on seals of said inner pouch.

35 According to the invention, folding and unfolding of said packaging assembly is provided by the bending lines on the

- 3 -

outer panels and by the bonding areas between the outer panels and the walls of the inner pouch.

5 According to the invention, locking of said packaging assembly in unfolded and erected position is provided by means on the lower parts of the outer panels.

10 According to the invention, self-standing of said packaging assembly in unfolded position is provided by the lower edges of the outer panels.

15 According to the invention, heat insulation of said packaging assembly is provided by the side parts of the outer panels and by the middle bending line on the middle part of the outer panels. Therefore, in the case of reconstitution of a product with hot water or/and microwave heating it is possible to hold the packaging assembly vertically on its side edges without burning hands/fingers.

20 According to the invention, it is possible that the packaging assembly be either empty or filled. In the case of an empty packaging assembly, the inner pouch is open. In the case of a filled packaging assembly, the product inside the inner pouch can be a dry, a pasty or a liquid material with or without pieces and the inner pouch is
25 closed.

30 According to the invention, the outer panels are made from solid or corrugated board or a combination thereof having a grammage comprised between 100 and 1000 g/m².

35 According to the invention, the inner pouch is made from a single-layer or multiple-layer material, wherein the layer or layers is/are taken in the group comprising Aluminium, Paper, Polypropylen, Polyethylen, Polyester, Polyamide, Ethylen vinyl alcohol comprising any coatings, adhesives and additives, the total thickness of the inner pouch being comprised between 10 and 1000 microns.

- 4 -

According to the invention, the inner pouch and the outer panels can be printed or unprinted.

5 According to the invention, it is possible to cover the outer panels with or place the panels inside an additional layer or layers of insulating material e.g. polystyrene foam, with or without bonding it with said outer panels. The additional insulating material is not critical as heat insulation is already provided by the material and geometry
10 of the outer panels.

According to the invention, the walls of the inner pouch are bonded with the outer panels with adhesives or by seaming. This means that the outer panels are not bonded
15 together directly and the assembly is maintained together by seaming or gluing between the inner pouch and the outer panels and also by the side seals on the walls of said inner pouch.

20 According to the invention, it is possible that the inner pouch containing a product be formed and sealed in closed position in several ways
One solution is that the upper parts of the walls of the inner pouch are bonded together forming a top seal. In this
25 case, it is a classical way of proceeding and the user tears the bonded upper parts of said inner pouch on one side to open the inner pouch. The user has then to press the side edges of the outer panels together, therefore opening completely said inner pouch, so that hot water can
30 be poured into the inner pouch to reconstitute the product. The easy opening in this case is provided by the material of the inner pouch which is easy to tear e.g. comprising paper, mechanical or laser perforation, easy-tear sealant layer e.g. easy-tear polypropylene or combination thereof.

35 The second solution is that the upper parts of the walls of the inner pouch are bonded together forming a top seal, whereas one or two side seals on the walls of the inner pouch present a notch or a slit for starting the tearing.

- 5 -

It is a solution that is similar to the 1st one, the only difference is the notch or slit so that the user has an even easier way to open the inner pouch, the way of proceeding afterwards being the same as for the 1st solution.

§

The third solution is that the upper parts of the walls of the inner pouch are bonded together forming a top seal, whereas said upper parts contain an easy-peel material e.g. easy-peel polypropylene or comprise a coating or adhesive that allows said upper parts to open from the bonded position when the side edges of the outer panels are pressed together. This means that the user has nothing to tear, he has only to press the side edges of the outer panels together, so that there is a separation of the bonded upper parts of the walls of the inner pouch. This solution combines easy opening and no torn piece like in solutions 1-2 to be disposed of.

The fourth solution is that the upper parts of the walls of the inner pouch are bonded together forming a top seal, whereas said upper parts contain an easy-peel material e.g. easy-peel polypropylene or comprise a coating or adhesive that allows said upper parts to open from the bonded position under pressure and/or temperature increase inside the inner pouch. For this solution, the most known procedure is to place the closed packaging assembly containing a product upright into a microwave device. The user does not need to open the packaging assembly anymore after microwaving as it opens and erects by itself in the microwave device. This solution combines self-opening and no torn piece like in solutions 1-2 to be disposed of.

According to a further feature of the invention, the packaging assembly comprises means at the lower parts of the rigid panels for locking the unfolded and erected packaging assembly in that position. This prevents folding the packaging assembly back when filled with reconstituted product and when pressing the outer panels by mistake, and,

- 6 -

consequently, helps prevent the product from pouring out when not desired.

According to the invention, all kinds of technically
5 feasible shapes are possible for the packaging assembly including the inner pouch, the outer panels, the means of locking said packaging assembly in unfolded and erected position, the seals on the inner pouch and the bonding areas between the inner pouch and the outer panels.

10.

Finally, the present invention concerns a method of producing the packaging assembly as described before, wherein

15 Embodiment 1:

1. the inner pouch is formed from reel-stock
2. said inner pouch is assembled with the outer panels that come in blanks
3. said inner pouch is filled and the upper parts of its
20 walls are seamed or glued together

Embodiment 2:

1. the inner pouch is formed from reel-stock
2. said inner pouch is filled and the upper parts of its
25 walls are seamed or glued together
3. said inner pouch is assembled with the outer panels that come in blanks

According to embodiments 1 and 2 here above, the inner
30 pouch can be assembled with the outer panels either at the filling location or at a packaging manufacturer. In the latter case, the packaging manufacturer pre-forms the inner pouch from reel-stock, assembles the inner pouch with the outer panels coming in blanks and delivers the assembly in
35 a flat condition to the filling location.

The following description is made in relation with the drawings of the invention, wherein:

- 7 -

Figure 1 is a schematic perspective view of the packaging assembly in an open standing state.

5 Figure 2 is a schematic front view of said packaging assembly in a filled and closed standing state

Figure 3 is a schematic top view of said packaging assembly in a filled and closed standing state

10 Figure 4 is a schematic side view of said packaging assembly in a filled and closed standing state

Figure 5 is a schematic top view of the outer panels and pre-formed inner pouch of said packaging assembly before
15 assembling

Figure 6 is a vertical section view of said packaging assembly in an open standing state

20 Figure 7 is a schematic view of one option of means of locking of said packaging assembly in unfolded and erected position. It also shows the bonding areas between the outer panels and the inner pouch.

25 In relation with figures 1 to 7, the packaging assembly comprises:

- two separate or joint outer panels (1,2) composed of rigid material, each of said outer panels comprising an upper part (3), a lower part (4), two side parts (5,6), two
30 side edges (7,8), an upper edge (30), a lower edge (31) and a middle part (9), the side parts (5,6) of each said outer panel comprising bending lines (10,11) and the middle part (9) of each said outer panel comprising a bending line (12).
- 35 - an inner pouch (13) comprising two opposite walls (14,15), a lower part (18) and an upper part (19), said walls being bonded together by two side seals (16,17) and said inner pouch being disposed inside said two outer panels wherein the walls (14, 15) of said inner pouch (13)

- 8 -

are bonded with corresponding opposite outer panels (1,2), wherein the upper part (19) of said inner pouch is placed higher than the upper edge (30) of said outer panels and the lower edge (31) of said outer panels is placed lower
5 than the lower part (18) of said inner pouch.

The walls of the inner pouch (13) are bonded with the corresponding opposite outer panels (1,2) along the side edges (7, 8) of said outer panels, along the upper edge
10 (30) of said outer panels and along the lower part (18) of the walls of said inner pouch as it can be seen on Figure 7.

In the case of the delivery of an empty packaging assembly
15 according to the invention, the assembly is ready to be filled with a product and then sealed to obtain the assembly as shown on Figures 2, 3 and 4.

On the contrary, if a product is already contained in the
20 inner pouch of said packaging assembly, in an opened state shown on Figures 1 and 6, the user can , depending on the product, either pour hot water onto the product to reconstitute it or place said packaging assembly into a microwave device. The assembly withstands high temperatures
25 reached by the product.

Figure 5 shows both panels (1,2) and the inner pouch (13) with their opposite walls (14,15) and their two side seals (16,17) before sealing panels and inner pouch together.
30 Figure 6 shows a vertical cross section with panels and inner pouch sealed together.

Figure 7 shows specifically one of the opposite outer panels (1) with means of locking the packaging assembly in
35 unfolded and erected position comprising one smaller flap (40), one larger flap (41) and bending lines (42, 43, 44). The flaps (40, 41) interlock with identical opposite flaps on the opposite identical outer panel. The second panel has the same flaps (40) and (41).

- 9 -

According to figures 2, 3 and 4, the inner pouch of said packaging assembly is closed and contains a product. For the specific example on figures 2, 3 and 4, this is a food product, which is dried mashed potatoes. There is a seal (20) on the upper part (19) of the inner pouch (13). For convenience reasons for the user, below the seal (20), there is a notch (21) to start the tearing of the upper part of the inner pouch, when the user has decided to open the inner pouch.

In this example, the panels are made of cardboard having a grammage of 350 g/m². The inner pouch is made of Polyester / Aluminium / Easy-tear polypropylene laminate and has a thickness of 80 microns.

- 10 -

Claims

What is claimed is

- 1) A packaging assembly comprising
 - two separate opposite outer panels composed of rigid
 - 5 material, each said outer panel comprising two side parts with their respective side edges, a middle part, an upper part with its respective upper edge and a lower part with its respective lower edge, wherein each said side part comprises at least one bending line and each middle part
 - 10 comprises at least one bending line and
 - an inner pouch disposed inside said two outer panels, said inner pouch comprising two opposite walls, each said wall comprising a lower, an upper and two side parts, wherein said two walls are bonded together and also with
 - 15 said two outer panels in a way that the packaging assembly can be unfolded and/or erected by pressing said outer panels together on their side edges
- and wherein the upper parts of the walls of said inner
- 20 pouch are placed higher than the opposite upper edge of said outer panels and the lower parts of the walls of said inner pouch are placed higher than the opposite lower edge of said outer panels.
- 2) A packaging assembly according to claim 1, wherein each
- 25 side part comprises one bending line and each middle part comprises one bending line.
- 3) A packaging assembly according to claims 1 or 2, wherein
- 30 it is empty and the upper part of the inner pouch is open.
- 4) A packaging assembly according to claims 1 or 2, wherein
- it is closed and filled with a dry, pasty or liquid
- material with or without pieces.
- 35
- 5) A packaging assembly according to any of claims 1 to 4, wherein the two rigid panels are made of solid or corrugated board or a combination thereof.

- 11 -

- 6) A packaging assembly according to claim 5, wherein the solid or corrugated board or a combination thereof has a grammage comprised between 100 and 1000 g/m².
- 5 7) A packaging assembly according to any of claims 1 to 6, wherein the solid or corrugated board or a combination thereof contains an additional layer of insulating material.
- 8) A packaging assembly according to any of claims 1 to 7,
10 wherein the inner pouch contains a layer or layers taken in the group comprising Aluminium, Paper, Polypropylen, Polyethylen, Polyester, Polyamide, Ethylen vinyl alcohol.
- 9) A packaging assembly according to claim 8, wherein the
15 inner pouch is made from a material having a thickness comprised between 10 and 1000 microns.
- 10) A packaging assembly according to any of claims 1 to 9,
20 wherein the walls of the inner pouch are bonded with the outer panels with adhesives or/and by seaming.
- 11) A packaging assembly according to any of claims 4 to 10, wherein the walls of the inner pouch are bonded together with adhesives or/and by seaming.
- 25 12) A packaging assembly according to any of claims 4 to 11, wherein the side parts of the walls of the inner pouch present notches or slits for starting the tearing.
- 30 13) A packaging assembly according to any of claims 4 to 12, wherein the material of the inner pouch is made to facilitate tearing by comprising specific additives, by manufacturing or converting process, by any other means or by a combination thereof.
- 35 14) A packaging assembly according to any of claims 4 to 11, wherein the upper parts of the inner pouch are made from an easy-peel material or comprise a coating or adhesive that allows said upper parts to open from the

- 12 -

bonded position when the side edges of the outer panels are pressed together

- 5 15) A packaging assembly according to any of claims 4 to 11, wherein the upper parts of the inner pouch, are made from an easy-peel material or comprise a coating or adhesive that allows said upper parts to open from the bonded position under pressure and/or temperature increase inside the inner pouch
- 10 16) A packaging assembly according to any of claims 1 to 15, comprising means at the lower part of the rigid panels for locking the unfolded and erected packaging assembly in that position.
- 15 17) A method of producing the packaging assembly according to any of claims 1 to 16, wherein
1. the inner pouch is formed from reel-stock
 2. said inner pouch is assembled with the outer panels
 - 20 that come in blanks
 3. said inner pouch is filled and the upper parts of its walls are bonded together
- 25 18) A method of producing the packaging assembly according to any of claims 1 to 16, wherein
1. the inner pouch is formed from reel-stock
 2. said inner pouch is filled and the upper parts of its walls are bonded together
 3. said inner pouch is assembled with the outer panels
 - 30 that come in blanks

1 / 4

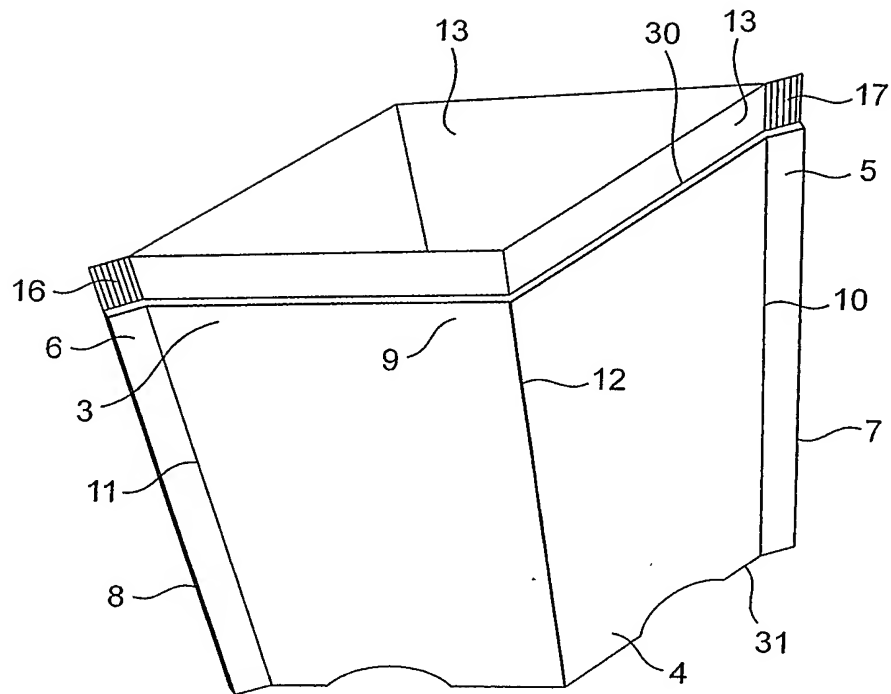


FIG. 1

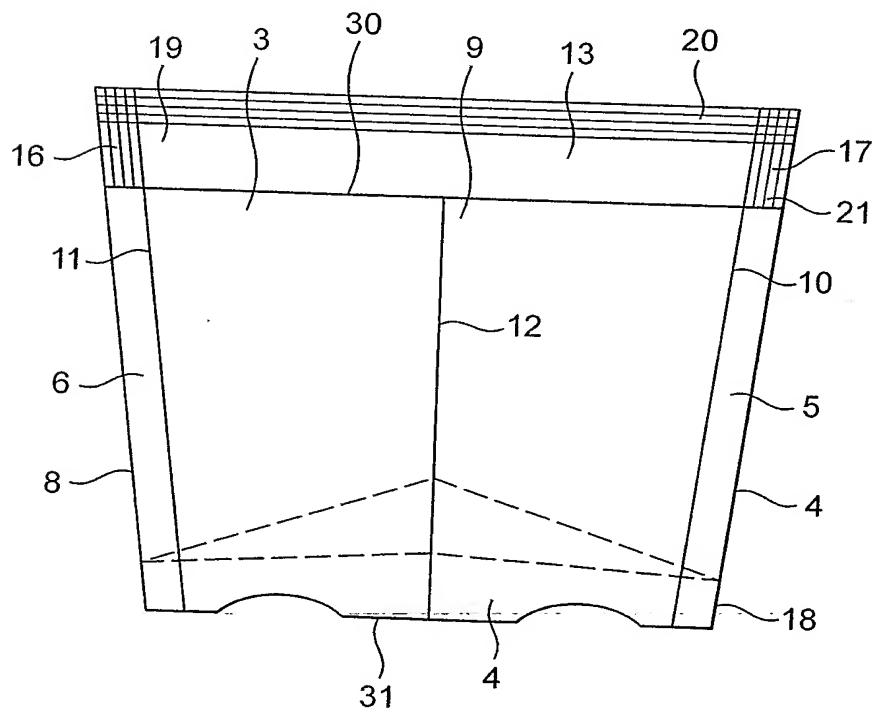


FIG. 2

2 / 4

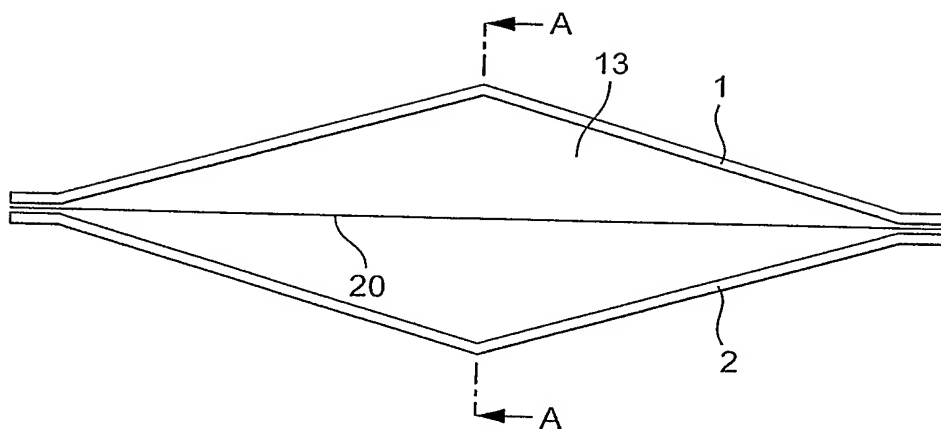


FIG. 3

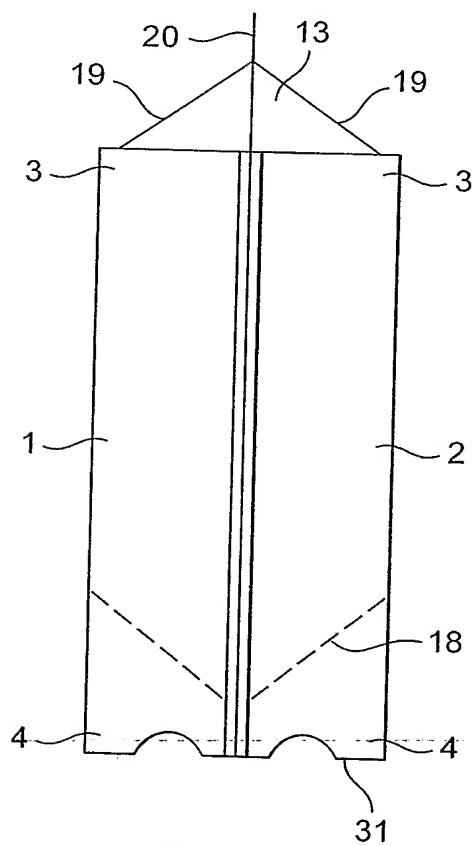


FIG. 4

3 / 4

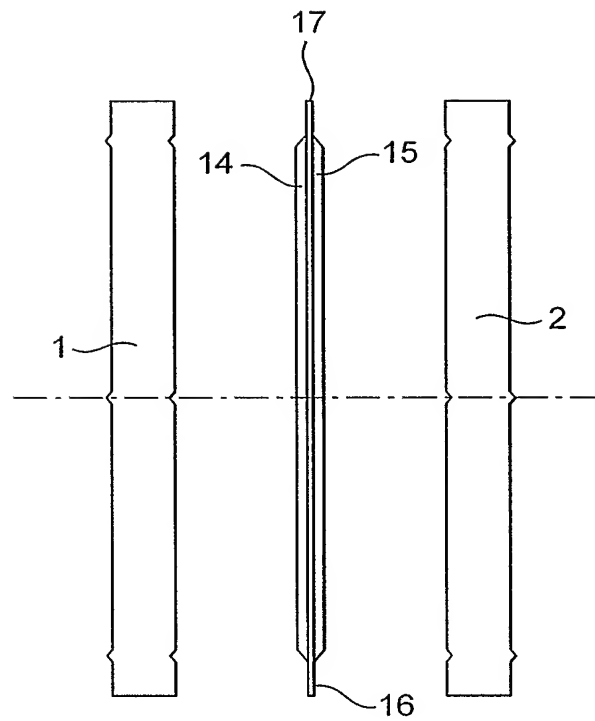


FIG. 5

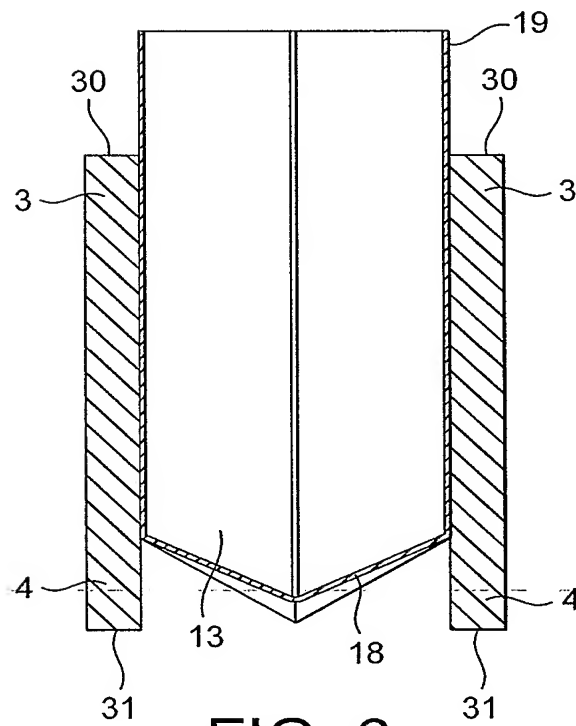


FIG. 6

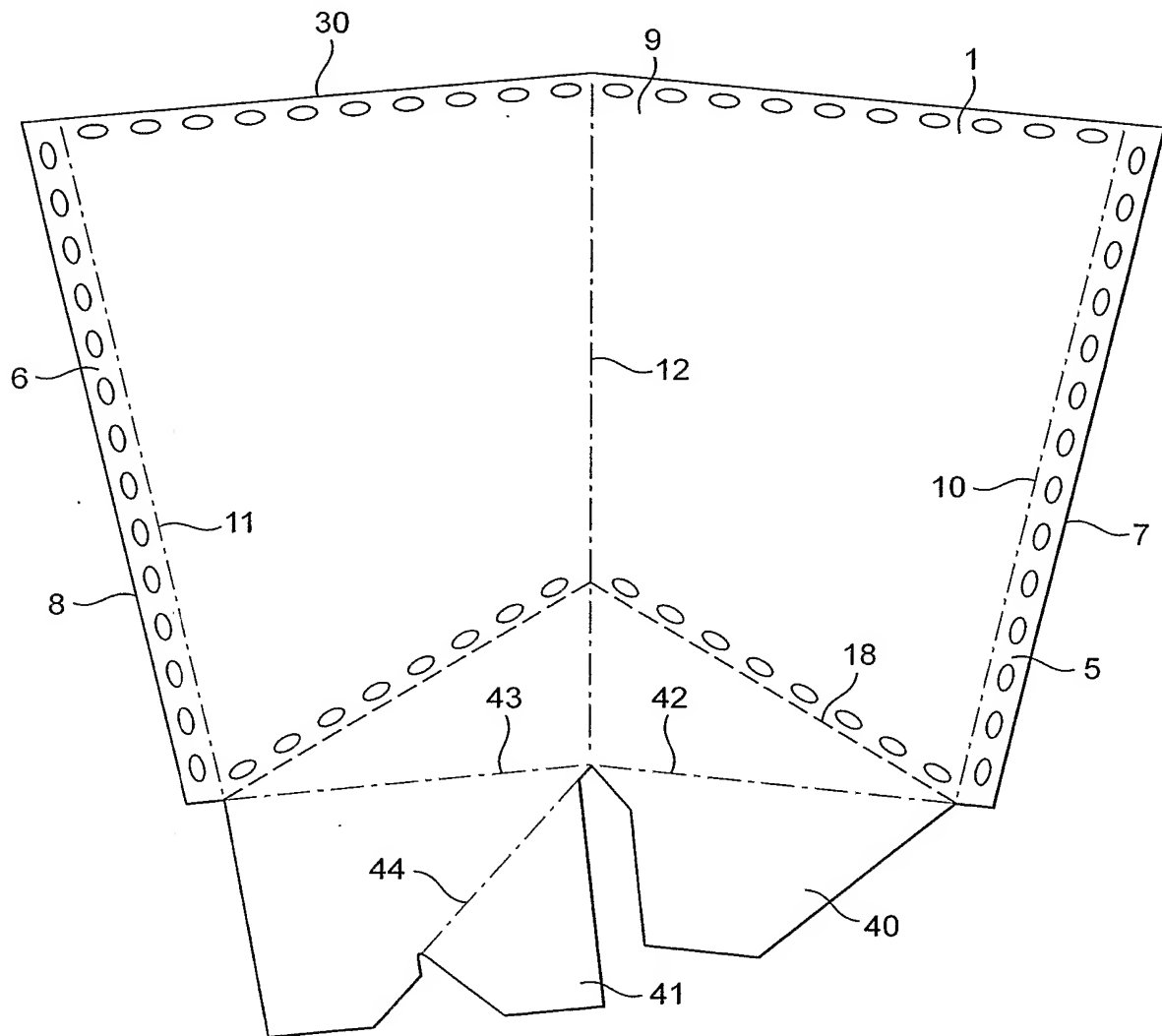


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2006/001047

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D33/02 B65D5/60 B65D75/52

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 207 066 A2 (MOUREAU PAUL [FR]) 14 June 1974 (1974-06-14) page 2, line 6 - page 4, line 3; figures 1-6	1,4,5, 10,11, 16-18
A	GB 945 217 A (VAPOR AB) 23 December 1963 (1963-12-23) page 2, line 127 - page 3, line 17; figures 5,6	1,4,5,8, 10,11
A	EP 0 533 648 A1 (FUJI PHOTO FILM CO LTD [JP]) 24 March 1993 (1993-03-24) column 3, line 31 - column 4, line 9; figures 1-3	1,18
	----- -/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

12 October 2006

Date of mailing of the international search report

20/10/2006

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Galli, Monia

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/001047

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 3 684 156 A (FETTINGER JOHN G ET AL) 15 August 1972 (1972-08-15) column 2, line 40 - column 4, line 11; figures 1-7</p> <p>-----</p>	<p>1,4,5, 10,11</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2006/001047

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2207066	A2	14-06-1974	NONE	
GB 945217	A	23-12-1963	CH 431366 A DK 103712 C	28-02-1967 07-02-1966
EP 0533648	A1	24-03-1993	BE 1005390 A3 DE 69204610 D1 DE 69204610 T2 DE 533648 T1	13-07-1993 12-10-1995 18-04-1996 22-09-1994
US 3684156	A	15-08-1972	CA 957995 A1	19-11-1974